Executive Summary

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Of Shared Roadways, Platforms, and Benefits: Integrating Autonomous Travel Choices

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Autonomous vehicles (AV) will be deployed in a variety of forms, both as fleets of robotaxis as well as personally owned vehicles. The effect of deployment on mobility, congestion, and labor will differ widely not only between robotaxis and personal AVs but also based on how robotaxis are deployed, whether on robotaxi-only platforms or on hybrid networks in which autonomous and human-driv en vehicles operate together.

This paper explores the factors that will shape AV deployment, including costs, market demand, technology conditions, and consumer choices, as well as the policy frameworks and technology company choices that will also affect outcomes. Current technological and economic conditions have allowed for expansion of geofenced robotaxi services in dense urban environments, where companies are competing for riders with other transportation network company drivers and also with transit services. Companies will face high fixed costs of AVs as well as costs to create the necessary digital infrastructure and will seek to recoup investments by maximizing robotaxi operations and minimizing downtime, which will make it difficult for robotaxis to fully meet peak levels of ride demand.

As a result of the different cost structures and functionality, and barring significant change in those costs and capabilities, this paper argues that neither personal AVs nor robotaxis are likely to fully displace personally owned human driven vehicles or human driven taxis and rideshare for some time. Instead, robotaxis, human-driven rideshare vehicles, and personally owned vehicles will share the roadways and each face provide distinct mobility services, and are therefore all likely to persist for some time as complementary rather than fully substitutable modes. The question is not whether these modes will coexist, but how this coexistence is structured.

The integration of human-driven and robotaxi fleets on a single network will allow riders to choose between autonomous and human-driven vehicles, maximizing cost competition and expanding rider benefits. Human drivers will also benefit from maintaining access to rider demand in hybrid networks and being able to compete for trips.

Early deployments of robotaxis in Phoenix, San Francisco, Los Angeles, and Austin, provide early insights into the impact of robotaxis on cities and human drivers. Assuming robotaxis are introduced at levels that meet only the baseload of trip demand and not the peak periods of demand, the impact of robotaxi competition will be greatest on that minority of drivers working full time as TNC drivers. This paper argues that human drivers will play a key role in networks with autonomous vehicles, given their ability to respond to changing levels demand; this flexibility should be supported rather than phased out of existing transportation networks.

Human-driven TNC	Hybrid Network (Best Outcomes)	AV-only Network
Elastic supply responds to demand peaks Geographic flexibility – no mapping needed Surge pricing induces more driver supply Situational judgment in edge cases Human assistance for riders Flexible local employment Zero upfront infrastructure investment	Resilient platform – Human drivers maintain service when AVs encounter edge cases, outages, or system disruptions Lower prices for riders – Price competition on a shared platform drives costs below what either model achieves alone Preserves driver earning opportunities – Driver trips per hour increase in hybrid markets – human drivers remain essential, not residual Most efficient vehicle utilization – AVs serve consistent baseload demand; human drivers absorb peaks – eliminating stranded fleet capacity and unmet demand Reduces excess VMT – Coordinated supply across human and AV vehicles limits deadheading through shared routing and demand matching Equitable access platform – Riders choose between human and autonomous options based on their preferences, age, disability, or safety needs	Low marginal cost per trip, especially off-peak Consistent 24/7 availability No driver fatigue or impairment risk Fixed, predictable supply and pricing Privacy – no human driver present Technology-driven safety improvements Lower operating cost per mile at scale

Human-driven and autonomous vehicles are structurally complementary, not substitutes. A hybrid platform delivers outcomes - lower prices, driver earnings, service resilience, reduced VMT, and equitable access - that neither model achieves on its own.

In addition to labor impacts, this paper also explores the potential impacts of autonomous vehicle adoption of safety, equity, and vehicle miles traveled. Decisions about network structures and incentives will determine whether the benefits of autonomous technology are spread across socioeconomic and geographic groups and help to fill in gaps in the existing transportation network. This paper also explores the potential adoption of personal autonomous vehicles will potentially impact transportation networks and consumer decisions.

For the near term, the white paper provides policy recommendations to locations considering or actively hosting autonomous vehicle deployments including but not limited to data reporting tied to actionable safety goals, formalized channels of communication between cities and operators, clear expectations for driving behavior, incentives for transit connections, and compensation for non-emergency uses of emergency services.

The outcomes of autonomous vehicle adoptions are not technological inevitabilities but rather stem from economic conditions, technological readiness, existing transportation options, consumer choice, and importantly, policy and design decisions. Decisions around the shape and requirements for deployments will help to ensure that autonomous mobility will promote to the greatest extent possible safety and transportation access.